WEB BASED
APPLICATION SPECIFIC
INSTALLATION INSTRUCTIONS

Replacing Aluminum Windows

Replacing Aluminum Windows

Old Aluminum Window

Replacement Window

Aluminum windows are usually secured by fasteners through the exterior flange into the plywood sheathing or wall studs. Also fasteners can be mounted through the jamb (in the sash channel) into the wooden frame around the opening.

This method works well when the old window is carefully removed. NOTE: *For an alternative method of replacing an aluminum or other finned window, go to* ***Alternative Method of Replacing an Aluminum Window*** *in this manual.*

Most aluminum window frames can be pried up and out of the opening without disturbing the siding or interior finish. Begin by removing the operating sash from the window. If there is a fixed panel, remove glass carefully. In windows with fixed panels, the glass may need to be broken to remove it. Use nylon filament tape in a criss-cross pattern to minimize shattering.

Remove all visible screws in the window jambs. If this does not free the window, use a flat putty knife between the window frame and the internal jamb trim to locate the flange screws.

Using a cold chisel or putty knife, attempt to shear all the mounting screws between the flange and the side of the house.

Note: *The drawings are typical installations. Though not to exact scale, they are representative of most situations and are meant as a guide only.*

Once all fasteners are sheared or weakened, carefully pry up the bottom frame using a block under the pry bar to protect the inside sill. If fasteners can't be sheared or weakened, careful prying can remove the window. Protect the opening as much as possible to minimize damage to siding or interior finish.

Once the bottom frame is arched sufficiently, use a recipro-saw or hacksaw and cut the frame piece. After it is cut, gentle use of the pry bar can remove both sides and top of frame without disturbing the siding or interior jamb, head, or sill trim.

Depending on the condition of the opening and the type of exterior trim or siding, it may be necessary to cap the opening to make a smooth transition of outer and inner surfaces in preparation for the new window. At least cover or caulk all cracks and holes.

Wood furring can be used to fill gaps in between siding and interior walls and to provide structural support in the opening.

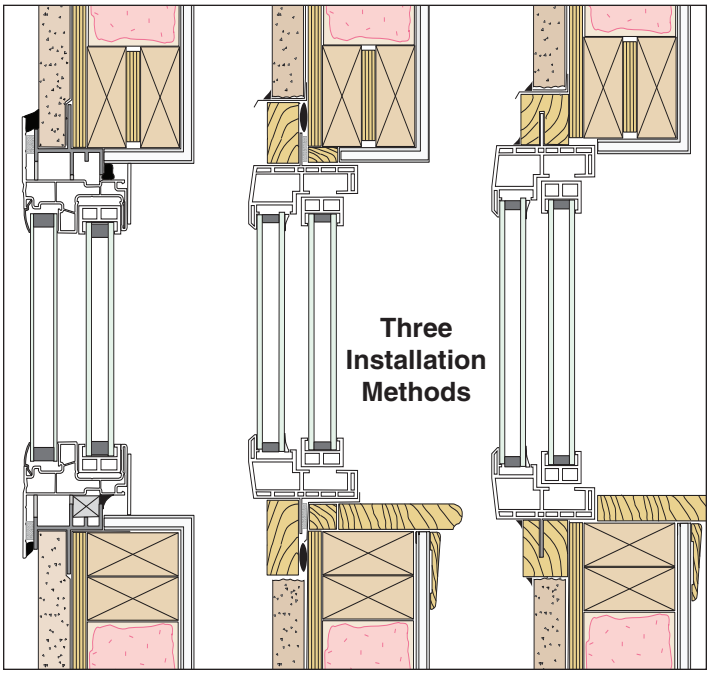
Most openings will now be ready for the installation of exterior "blindstops". Aluminum or vinyl angles (1" x 3") or wood (1" x 1" or 1" x 2") can be used for stops and should be installed to the outside allowing for depth of replacement window (3 1/4"). Install these stops on head and both jambs only. Sloped sills require the use of the provided sill angle. Flat sills should be caulked where the window meets the sill so as not to block drainage.

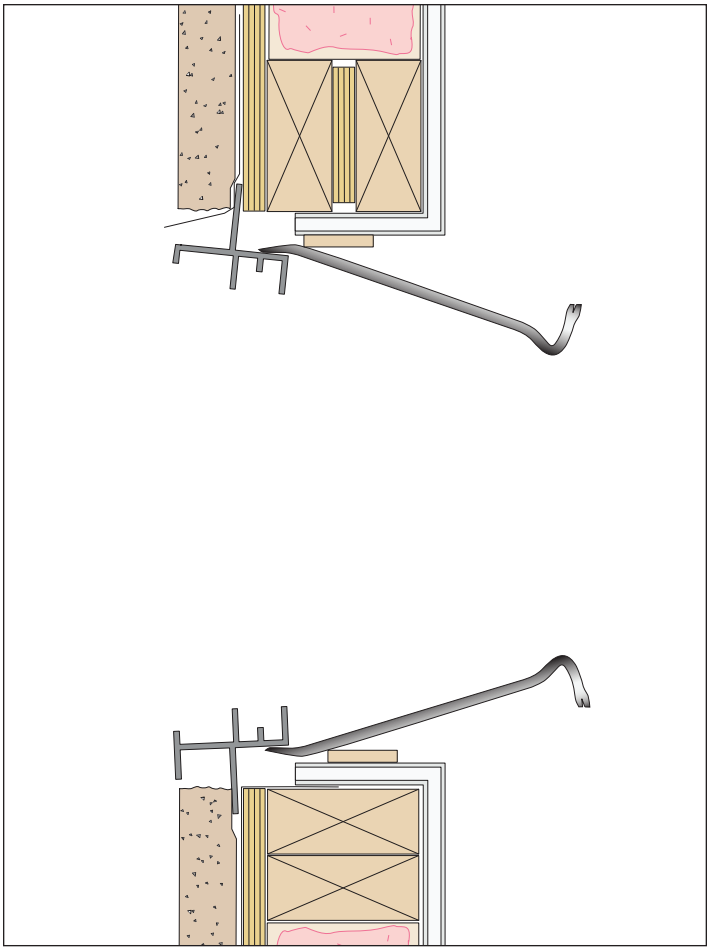
Install new window against outside stop, caulk and trim interior and cap exterior as necessary. It may be wise to cap the furring or outside stop before installation to minimize after-installation trim work.

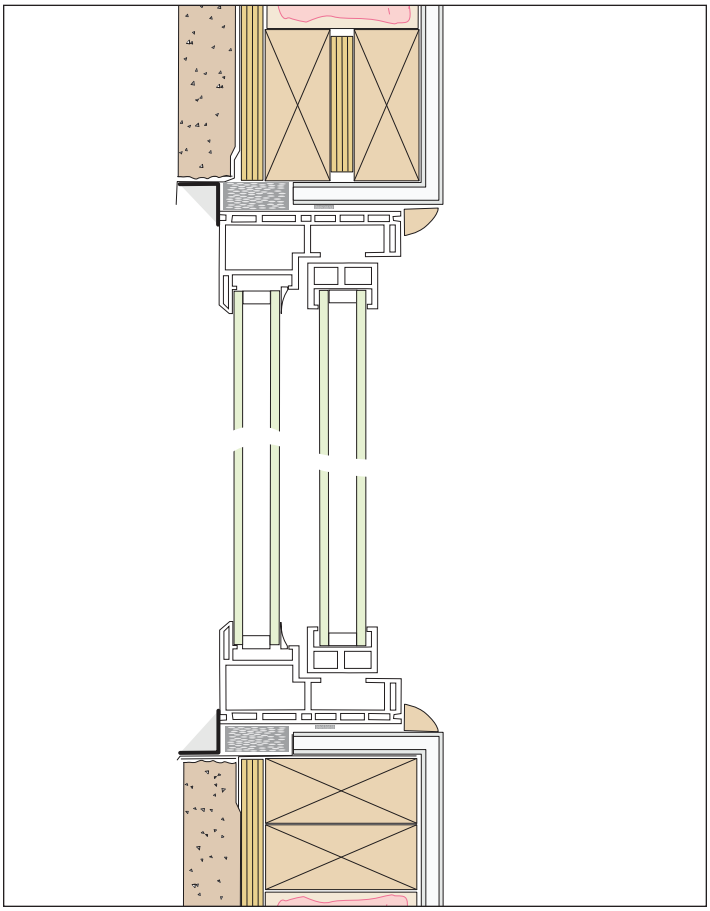
Pre-extruded shapes or available "Snap-Trim" can make the job easier. Mount the angle of the snap trim with "pop rivet" to the top of window. After placed in opening, mount angle to other sides.

Plumb and square window using snap-trim angle and pop rivet to window and screw trim angles to interior window opening, cap exterior and caulk. Once all trim angles are secure "Snap Over" trim and caulk. The use of Snap Trim eliminates the need of stops and shims.

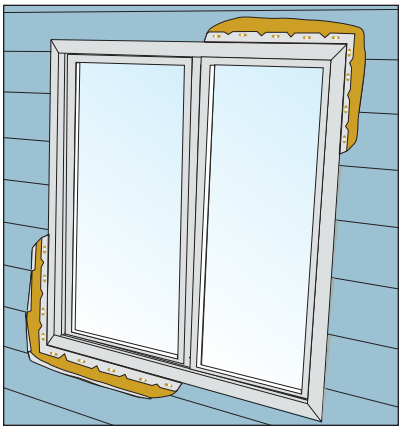
NOTE: *When removing finned windows it is possible to tear the underlying building paper and weather barrier. If so, consider a "Jump Frame" installation described elsewhere in this manual.*

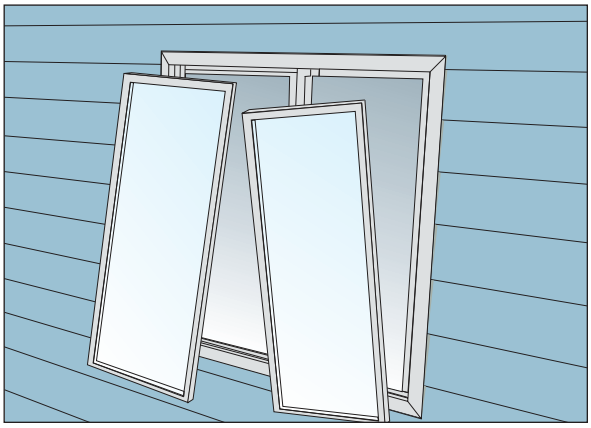






Making the Choice: Leaving the Old Frame In

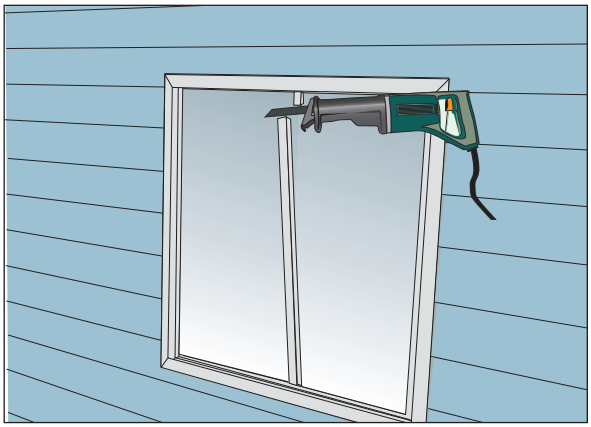




Leaving the Old Frame in Place

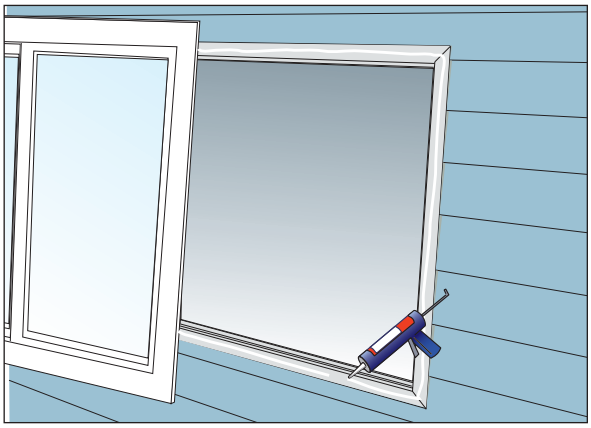
For Aluminum Windows that have been mounted to the underlying sheathing through a nailing fin, it is possible to leave the old frame in and not disturb the siding.

First, you need to remove the operating sash and the fixed sash, Usually this is easy to do unless the fixed glass is glazed directly into the window framing. If so, tape the glass with duct tape to help hold the glass together in case you need to use force to get it out.



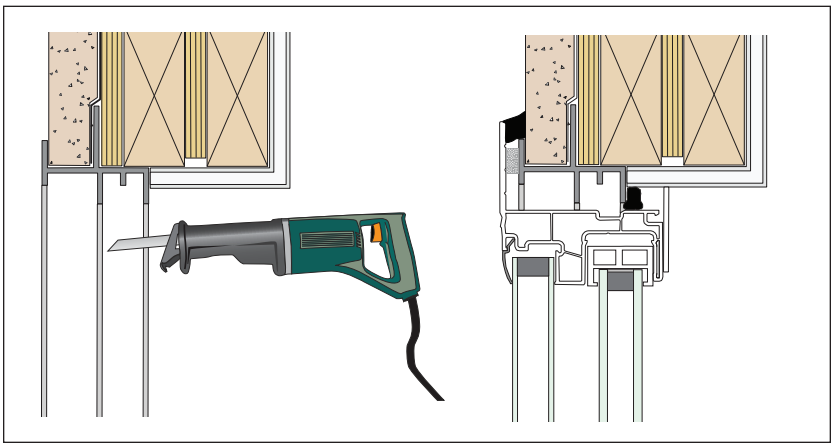
Once the glass panels are safely removed, used a reciprocating saw to cut through the vertical meeting stile as close to the header and sill frame members as possible.

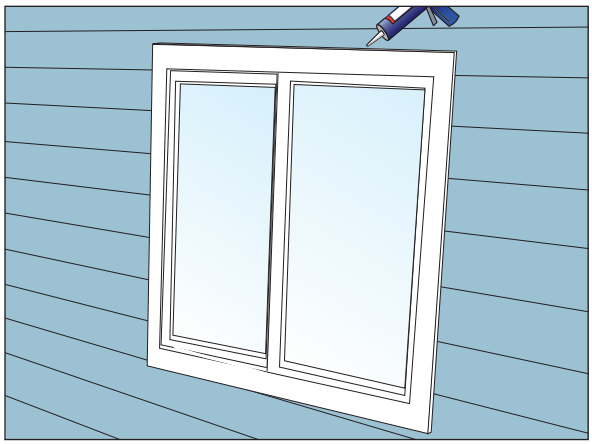
Once the center meeting stile is removed, caulk the exterior of the left-in-place frame with quality sealant and place the wide flange window against the old frame and seat the sealant.



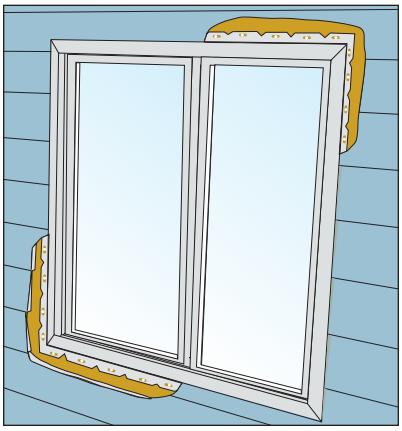
Trim the interior as needed. Be sure to address where the flange of the new window sits against the old header to make sure water is diverted out and over the new window rather than behind it as it cascades down the side of the exterior wall.

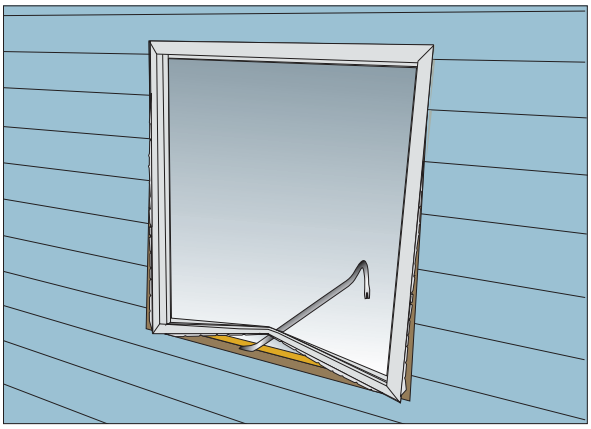
It is imperative that the top of the new window is sealed to prevent cascading water from penetrating behind the exterior flange and into the cavity between the window and the opening.





Making the Choice: Taking the Old Frame Out





Removing the Old Frame

Depending on how the old window is finished on the outside, you can choose to remove the old frame completely versus leaving in the old frame. You start the same by removing the sash (operating and fixed) and cutting out the meeting stile.

Once the meeting stile is removed, used the reciprocal saw to cut the sill and header part of the frame slightly to facilitate bending and collapsing it using a crow bar to pry it up.

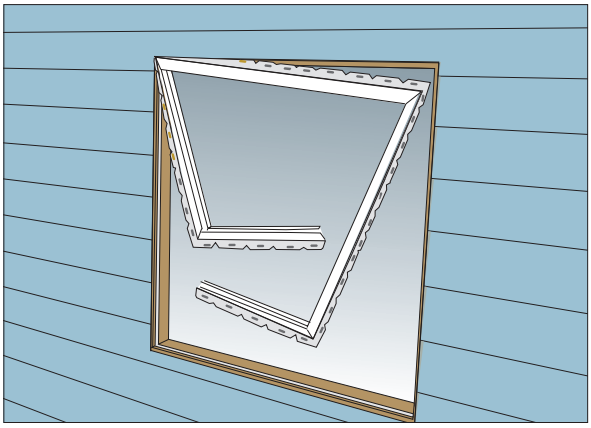
Use a wood block under the crowbar to minimize potential damage to the sill and header. Pry directly up and the frame will come out from between the siding and the sheathing. It won't take much effort to do so and that will "tear" the nailing fin slots away from the nails allowing the frame to collapse.

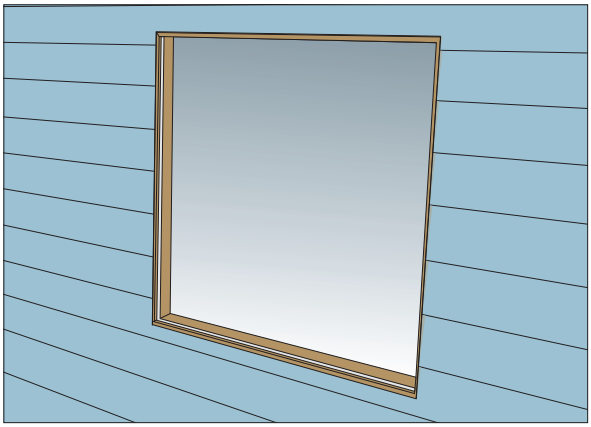
Do it on the bottom, the sides and the header and you should be able to remove it completely.

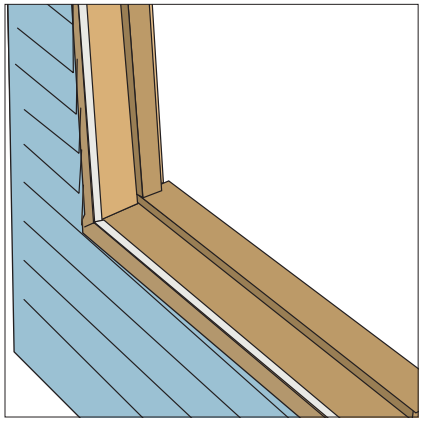
Take care to cover the gap and use slow expansion foam sealing tape and/or insulation to cover the gap before setting the new window in against the old framing members along the inside jambs, sill and header.

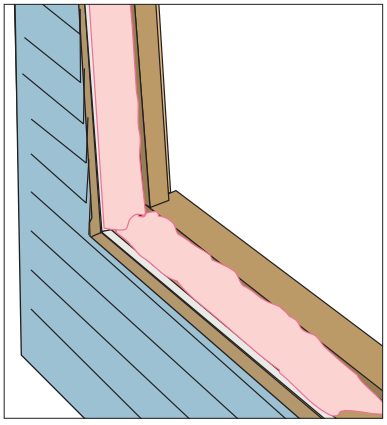
Seal the new window along the outside, taking care to leave weep gaps in the sealant along the sill before setting new molding against the new window frame to fill out the space out to the siding.

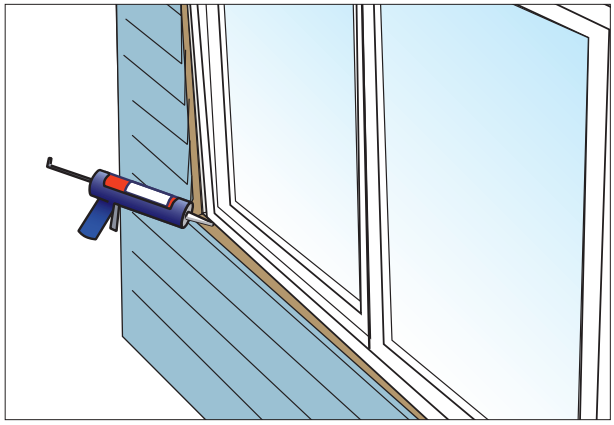
Carefully seal the outside to divert water away from the window rather than letting it get in behind the trim.









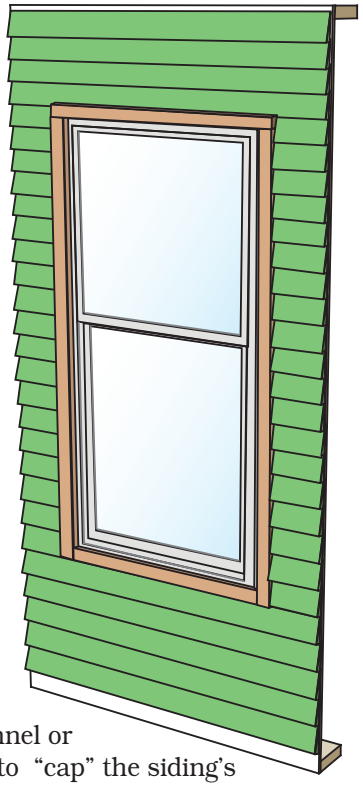


Metal Frame-Out- *Replacement Sequence*

Step 1:
Most original windows with a fin have been trimmed with applied exterior wood trim or casing to cover the mounting fin and abut the siding.

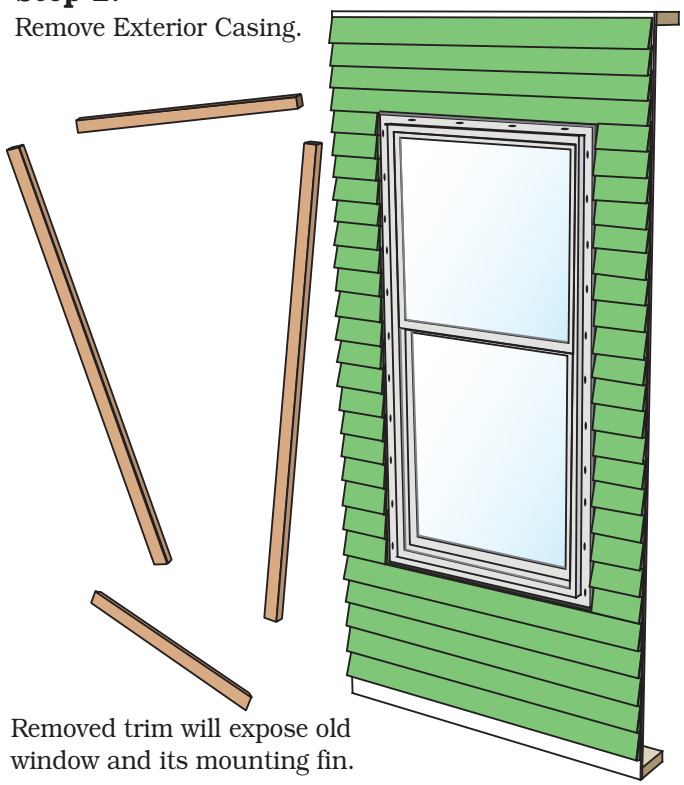
Carefully break any sealed joints between the casing, the siding and the window.

If there is no casing and the siding butts to window frame using a "J" Channel, cut-back the siding with circular saw or Fein Tool to expose the old window's fin, and proceed the same from there.



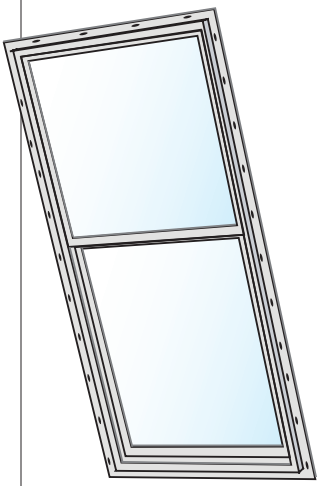
At the finish, use "J" Channel or extended leg "C" Channel to "cap" the siding's cut ends and form a joint with the new casing trim.

Step 2:
Remove Exterior Casing.

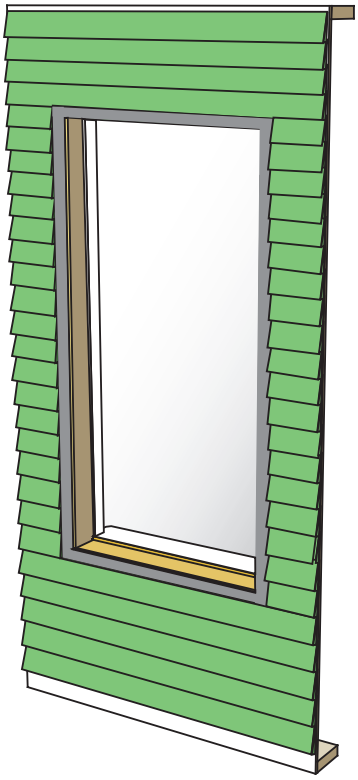


Removed trim will expose old window and its mounting fin.

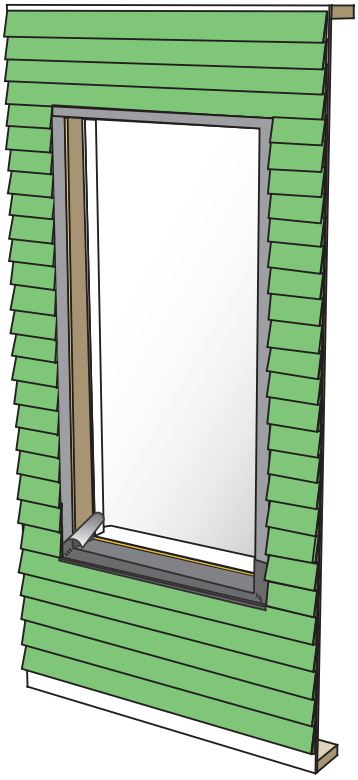
Step 3:
Removed the nails carefully from the old window's fin.



Try to disrupt old flashing as little as possible.



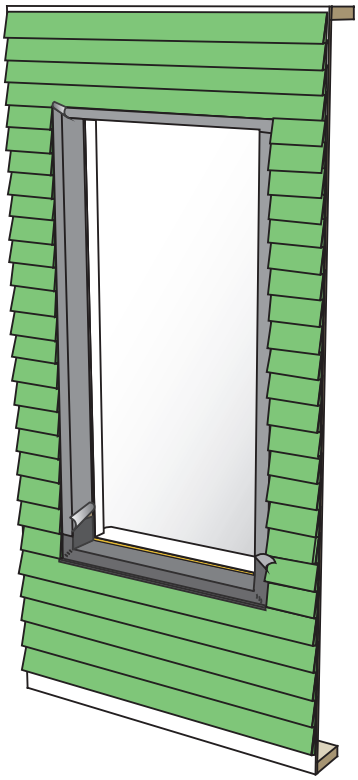
Step 4:
Create Sill Flashing using adhesive-backed flashing, and/or liquid applied flashing to cover the old sill and extend up the jambs about 6 inches.



Step 5:

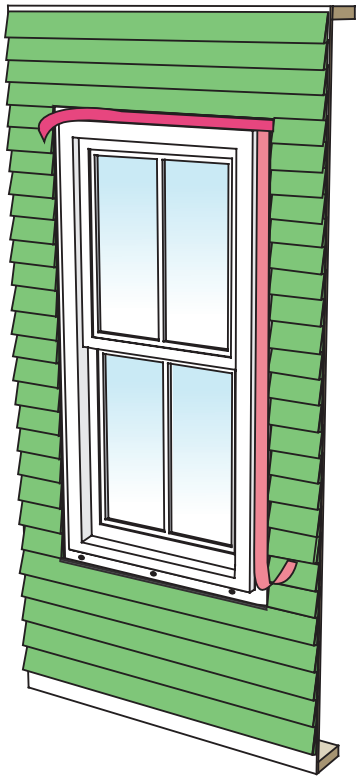
Re-establish jamb and header flashing using adhesive-backed flashing or liquid applied flashing.

Where adhesive-backed flashing is used, overlap the sill flashing with the jamb flashing, and overlap the jamb flashing with the header flashing.

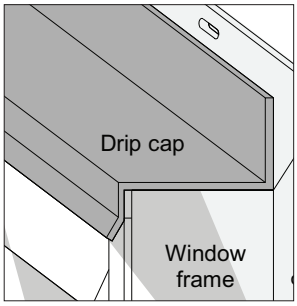


Step 7:

Apply Adhesive-backed flashing over fin and tuck under siding.



Place Drip Cap on top.



Step 6:

Set the new window in place. Carefully shim to leave drainage space at sill and make new window plumb, square and level.

Carefully fasten being careful not to nail the new window too tight.

Use Simplex (or equal) cap nails at header to allow expansion.

Step 7:

Apply new pvc trim casing over flashed fin on header and jambs and then seal.

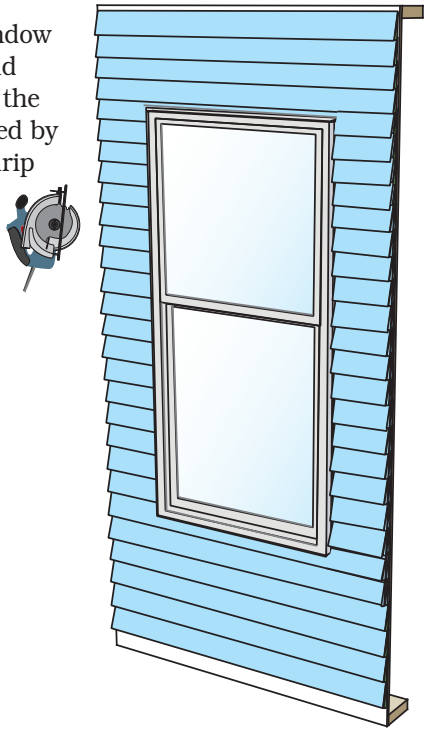
Trim placed along bottom must allow drainage of any water that may accumulate in sill.

Nailing Fin Frame-Out- *Alternate*

If a Fin-Mounted Window has the fin covered with J-Channel and siding, the siding can be cut back to expose the nailing fin making the old window easy to remove. Once the new window is installed and flashed, exterior trim molding can be applied as shown on previous page.

Step 1:

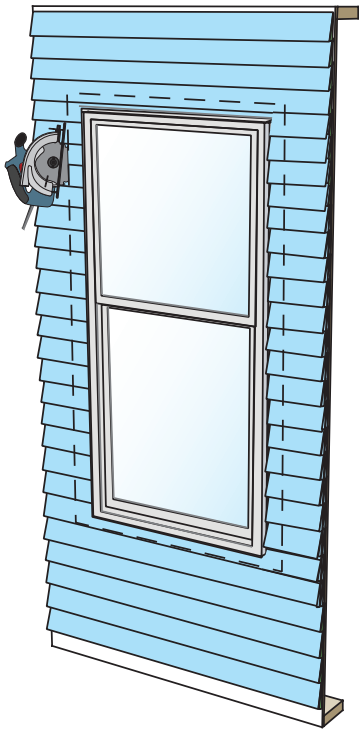
A very common window installation of an old finned window has the mounting fin covered by "J" Channels and drip cap and has the siding butting up to the "J" Channel.



Step 2:

Cut-back the siding with circular saw or Oscillating Tool sufficient width (approximately 1/2" to 2") to expose the old window's mounting fin.

Take care not to cut too deep.



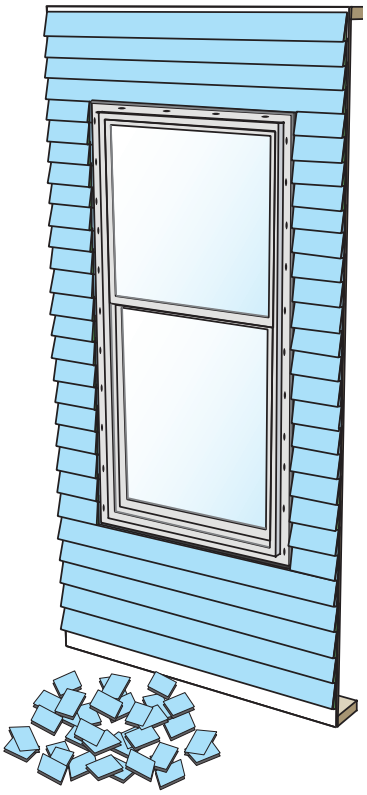
Step 3:

Removed the siding carefully nails carefully from and make adjustments as necessary to expose the complete fin.

Try to disrupt old flashing as little as possible.

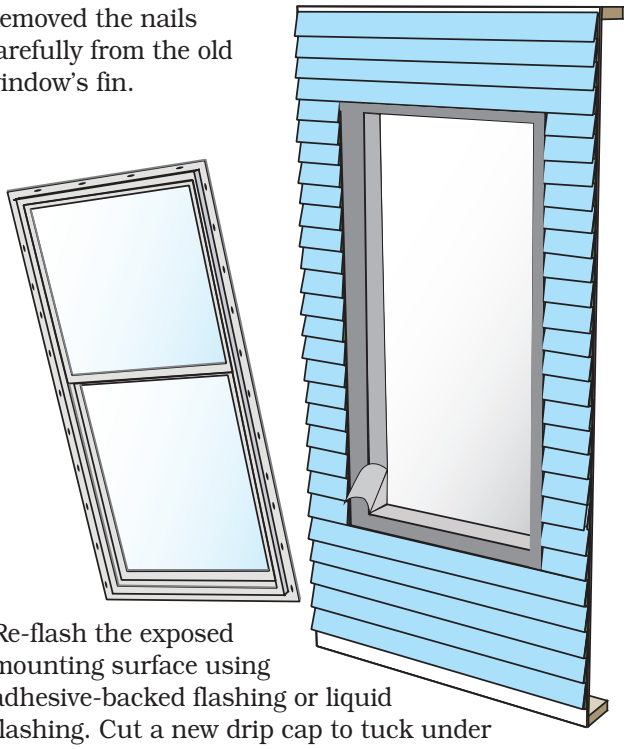
Remove all the siding pieces from around the window as cleanly as possible- trying to preserve any flashing.

The cleaner the cutaway, the easier and better the finished replacement will be.



Step 4:

Removed the nails carefully from the old window's fin.



Re-flash the exposed mounting surface using adhesive-backed flashing or liquid flashing. Cut a new drip cap to tuck under the siding after the new window is installed.

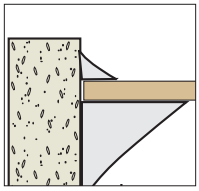
Picking the Proper Sealant

AWDI understands that the application of a sealant is as crucial as the choice of sealant. When a bead of sealant is applied to a joint there are severable factors to consider:

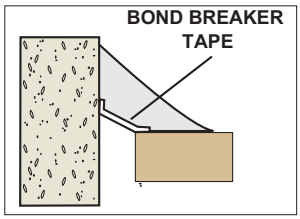
- Adhesion
- Flexibility
- Durability
- Compatibility
- Temp, Weather, Exposure)
- Aesthetics

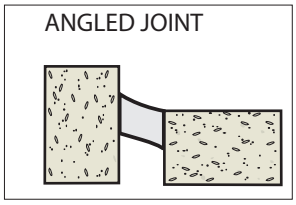
Within these three performance aspects there are countless combinations of applications, substrates and conditions a sealant is exposed to.

Bedding Joints:
For bedding joints, it is especially important that the sealant meet AAMA 800-802, and is of the right consistency and made up of 100% solids so it will not shrink after cure, unlike solvent and latex based sealants that shrink and create gaps after curing.

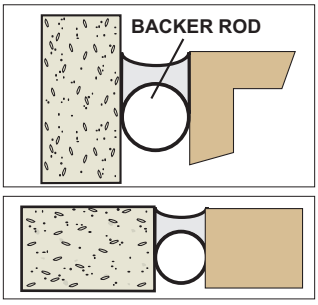


Fillet Joints:
A fillet joint is formed when two surfaces come together to form a right angle. The sealant used to join these two surfaces is triangular in shape. The sealant must adhere to the variety of substrates you're faced with. Without strong adhesion there is a high chance that the sealant will pull away from the substrate allowing for air and water infiltration.





Control Joints:
A control joint is formed when two similar or dissimilar materials meet or when substrates do not form a right angle. This joint will require both a backer rod and sealant for proper application. This joint can be as wide as 5/8 inch and be prone to extreme movement, a highly flexible sealant is necessary for a reliable seal with this application. In order to successfully install a window or door and effect a lasting weathertight seal, AWDI recommends an ASTM C920, Class 50 sealant such as premium DYNAFLEX® from DAP as a good representative to seal the exterior joints of windows and exterior finish materials. The best choice is a sealant that meets AAMA 800-802 to assure proper adhesion to the most common building materials and that is compatible with WRB and flashing tapes; and can be ued in a wide temperature range and wet surfaces.



Desired Properties

- No Shrinkage
- Locks out air and water infiltration to protect integrity of the seal
- Proven Wet Surface Application
- Ability to use the same sealant in warm and cold temperature situations to produce consistent results. 0F – 140F cold and warm weather application
- Strong Adhesion / All Surfaces Will stick to even the most difficult to bond building materials
- 5X stretch, 50% joint movement Long term durability assurance even with expansion and contraction of building materials
- 24 hour fast cure, paintable 1 HR. Fast cure to protect the building structure from outside forces and quick paintability saves time
- Achieves bubbling resistance faster to ensure optimal aesthetics
- 4,600 + Color Matches ensures perfect color match to all primary building materials
- Dirt & Dust Resistance ensures optimal visual appeal long after an installation
- UV Resistance
- Long term durability to compliment the durability of the building structure

Spray Foam Insulation

While the term “Spray Foam” is often widely used in construction, there are two different types and each has its advantages and disadvantage.

Spray foam has been shunned by window installers and manufacturers over the years because foams, in the past, have either continued to expand after trim has been applied deforming the more pliable vinyl window frames, or because they have been over used to fill the gaps left when old windows are removed and the underlying rough opening has been exposed.

Make sure the foam you use has been tested in accordance with AAMA 812 and meets standard for low pressure development.

Most standards applying to window installation do not delineate between open cell foam and closed cell foam, the more popular “minimal expansion” foams are most frequently used and they are mostly closed cell. More confusing yet, is when foams are recommended, the compressed foam tape alternatives are called out to be open cell.

When it comes to Spray Foams, it helps to understand the differences.Open-cell spray foam (ocSPF) has a cell structure where the cells are filled with air. The open-cell structure renders soft, flexible foam, with a density of about 0.5-0.8 pounds per cubic foot (pcf).

The R-value per inch of open-cell foam typically ranges from R3.6 to R4.5 per inch. Unlike fiberglass and cellulose, the fine cell structure of ocSPF makes it air-impermeable at certain thicknesses. The air-impermeability of ocSPF qualifies it as an air-barrier material, dramatically reducing air leakage through the building envelope, significantly lowering the building’s heating and cooling costs. However, ocSPF, like fiberglass and cellulose insulations, is moisture-permeable, and may require the installation of a vapor retarder in colder climates.

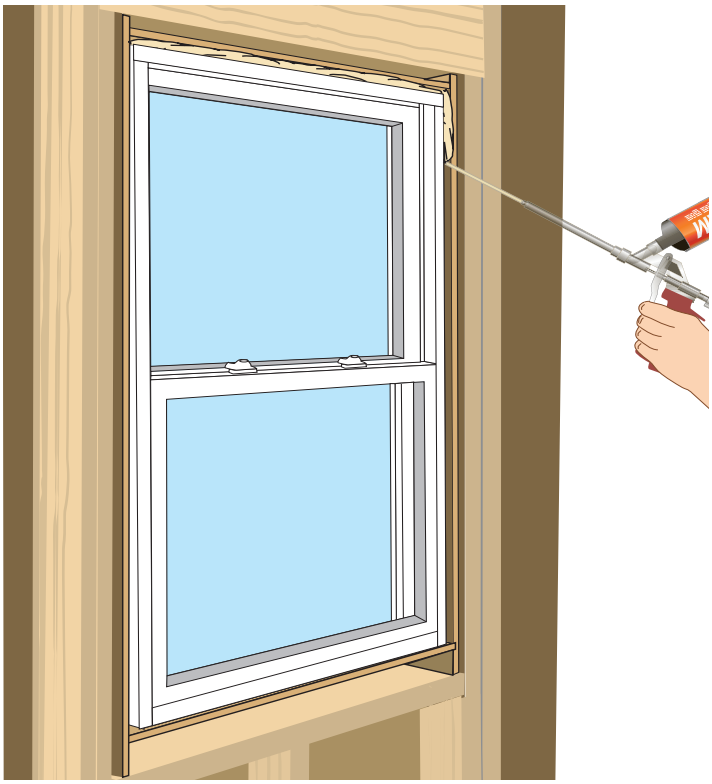
Closed-cell spray foam (ccSPF) has a closed cell structure which yields rigid hard foam, with a density of 1.8-2.3 pound per cubic foot (pcf), and can provide structural enhancement in certain framed buildings. The smaller cells trap insulating gas from the curing, which has a lower thermal conductivity than still air, and increases the R-value to anywhere from R5.8 to R6.9 per inch.

Like ocSPF, ccSPF is also air impermeable at certain thicknesses and can qualify as an air-barrier material. The bigger benefit is that the closed-cell structure of ccSPF also makes it water-resistant, and is the only spray foam that can be used where contact with water is likely.

At a thickness of 1.5 inches, no additional vapor retarder is required for most applications.

Desired Properties

- Make sure the foam used has been tested in accordance with AAMA 812 and meets standard for low pressure development.
- Quick Setting Formulation: can be cut or trimmed in less than 1 hour
- Cold Temperature Application: can be applied in temperatures as low as 14F
- Insulation Value of R5: makes it an efficient method for stopping air and moisture infiltration
- Remains Flexible Once Cured: will not crack or dry out



Using Spray Foam

For the best installation, it is necessary for the gap around the window or door to be sealed to block out air, water and vapor penetration. ccSPF can do that well if selected and used properly. Improper use can create water traps, impede drainage and exert excessive pressure to the window frame during expansion.

Remember: Vapor barriers need to applied on the warm side of the opening. Double vapor barriers (one on the warm side and another on the cool side) encourage condensation between and will trap the resulting condensation. Also, window installation cavities (the space between the window frame and the rough opening, or left-in-place old window frame) need to "breathe" to the outside, and allow drainage of collected water to the outside.

Used wisely, ccSPF can be the best solution. AWDI recommends DAP® DRAFTSTOP 812 Window and Door foam. DAP® DRAFTSTOP 812 also achieves a thermal performance of R-5 per inch.

Application

DAP DRAFTSTOP Foam is applied using a Foam Applicator Gun. This foam and gun combination allows for more precise application than the straw grade foam alternative. This gun offers a rear valve used to control the size of bead applied into the openings. The valve also allows the life of the foam to be extended by closing the opening of the barrel for future use.

For even smaller openings, a detachable screw on top is included with the gun to be able to fill gaps as small as ¼" wide.

Important tips:

• Similar to the sealant gun, it is critical that you balance the movement of the foam gun or straw barrel and how you dispense the foam so that the foam makes contact with both the rough or existing window frame and replacement window frame.

• If the dispensed foam does not make contact with both the rough frame and the window frame, there won't be an adequate bond to seal out water and air.

• Industry Standards suggest application of 1 inch beads, separated by an equal space. Be careful not to create two vapor barriers - one at the exterior and one at the interior. Make sure there is the ability for the opening to breathe to the cold side for drying and drainage. Use backer rod about one inch in the sill as a stop to make a workable back dam

• When applying foam around the perimeter of the window or door, you must maintain a minimum depth of 1 inch. This depth is required to provide the correct thermal performance, to help improve energy savings, and to protect against condensation problems.

• When applying foam as a back dam to the gap between the window frame and the rough sill, do not allow the foam to extend to the exterior edge of the opening. Maintain a minimum of a 1 inch gap between the foam and the exterior edge of the rough sill. If foam fills this gap at the sill, any water from leakage will not be able to drain to the drainage plane or exterior cladding surface. Place backer rod the length of the sill, 1" from edge and use it as a back dam guide.